MEMORANDUM

March 4, 2008

TO: LOWER WILLAMETTE GROUP EXECUTIVE COMMITTEE

FROM: LOWER WILLAMETTE GROUP LEGAL COMMITTEE

RE: Pacific Lamprey

The LWG Executive Committee asked the LWG Legal Committee to comment on the recommendation in EPA's Eco-Risk Assessment Problem Formulation document that:

> "[Pacific Lamprey] is a special-status species and will be evaluated at the more conservative individual organism level in the risk characterization."

EPA, *Problem Formulation for the Baseline Ecological Risk Assessment at the Portland Harbor Site*, February 15, 2008, p. 26, fn. 2.

I. QUESTION PRESENTED

Do EPA and Oregon rules and guidance direct EPA to assess risk to Pacific Lamprey on an individual, as opposed to a population, basis?

II. EXECUTIVE SUMMARY

EPA guidance states that ecological risk assessments are generally performed on a population or community scale, but make an exception for endangered or threatened species known to be present. Pacific Lamprey is not at this time a listed or candidate threatened or endangered species (it was a candidate species from 2003 until a decision was made in 2004 not to list it). Thus, EPA guidance does not require assessment on an individual basis due to any listed or candidate endangered species status.

Oregon rules require that risk to federal and state listed threatened and endangered species be assessed at the individual level. Pacific Lamprey is not federal or state listed as endangered or threatened. It is an Oregon "sensitive species"; however, the Oregon rules do not impose any special requirements for state "sensitive" species or, for that matter, to candidates for threatened or endangered status. Thus, they would not require risk assessment at the individual level for Pacific Lamprey.

Although there is no statutory or regulatory requirement that Pacific Lamprey receive any special level of assessment in the eco-risk assessment process, the LWG has nonetheless

recognized the Pacific Lamprey as a species of special cultural significance to the six tribes that are partners in the Portland Harbor investigation. For that reason, the LWG has agreed to, and has almost completed, an enhanced evaluation of lamprey that includes the collection and analysis of lamprey ammocoetes and a study of the sensitivity of lamprey ammocoetes.

III. DISCUSSION

A. Status of Pacific Lamprey

A petition to list the Pacific lamprey as a federal threatened species was filed with USFWS on January 27, 2003. On December 20, 2004, USFWS determined that the species was not in need of this special protective measure. Thus, at this time it is no longer under consideration for threatened or endangered status at the federal level. *See* "Endangered and Threatened Wildlife and Plants; 90-Day Finding on a Petition to List Three Species of Lampreys as Threatened or Endangered," Fish and Wildlife Service, Interior (Dec. 20, 2004), *available at* http://www.fws.gov/pacific/ecoservices/endangered/listing/pdf/Lamprey_90Day_FinalRule.pdf (last visited June 18, 2006). Upon reviewing the petition, USFWS determined that

> "[n]either the information presented in the petition nor that available in Service files presents substantial scientific or commercial information to demonstrate that the Pacific lamprey located in the lower 48 states is a listable entity. Accordingly, we are unable to define a listable entity of the Pacific lamprey. Since the population of Pacific lamprey cannot be defined as a DPS at this time, thus ineligible to be considered for listing, we did not evaluate its status as endangered or threatened on the basis of either the Act's definitions of those terms or the factors in section 4(a) of the Act." *Id.* at 42-43.

The Pacific Lamprey has not been designated as either endangered or threatened under Oregon law, nor has it been a candidate for such status. *See* Oregon Department of Fish and Wildlife, *available at* http://www.dfw.state.or.us/wildlife/diversity/species/threatened_endangered_candidate_list.asp (last visited March 4, 2008).

Pacific Lamprey (*Lampetra tridentate*) is listed as "vulnerable" on the 1997 Oregon State "Sensitive Species" List. *See* Oregon Department of Fish and Wildlife Sensitive Species 1997 *at* http://www.dfw.state.or.us/wildlife/diversity/species/docs/senspecies1997.pdf (last visited March 4, 2008). As the Oregon Department of Fish and Wildlife explains, the "Sensitive Species" list "is non-regulatory and serves as an early warning system for biologists, land managers, policy makers, and the public." (http://www.dfw.state.or.us/wildlife/diversity/species/sensitive_species.asp.) The lamprey is also listed by Oregon as Protected Nongame Wildlife. OAR 635-044-0130.[1]

[1] The Oregon Administrative Rules prohibit the hunting, trapping, pursuing, or possession of – either dead or alive – any animal on this list.

Pacific lamprey have been the subject of increased study and concerted conservation efforts. There are several active projects in the region focused on restoration of Pacific Lamprey (e.g. several BPA projects). In September 2007, the USFWS adopted a "Pacific Lamprey Conservation Initiative" under which it committed to coordinate development of a Pacific Lamprey conservation plan and promote more conservation partnerships.

B. Requirements of EPA Guidance

Two main EPA guidance documents exist on the issue of eco-risk. The first is specific to Superfund and the second provides general guidance applicable to all EPA program areas:

- Ecological risk assessment guidance for Superfund: Process for designing and conducting ecological risk assessments, Interim final. EPA/540-R-97-005 *[sic—this apparently should have been cited as* EPA/540-R-97-*006]*. Office of Solid Waste and Emergency Response (OSWER), US Environmental Protection Agency, Washington, DC ("EPA 1997 Superfund Eco-Guidance").

- Final guidelines for ecological risk assessment. EPA/630/R-95/002F. Risk Assessment Forum, US Environmental Protection Agency, Washington, DC ("EPA 1998 General Eco-Guidance").

Neither of these documents directly addresses the issue of when individual level risk assessment should be performed. The EPA 1998 General Eco-Guidance discusses the issue only in Part B—Responses to Comments: "Some reviewers felt that the Guidelines should address effects only at the population level and above. The Guidelines do not make this restriction for several reasons. *First, some assessments, such as those involving endangered species, do involve consideration of individual effects*. Second, the decision as to which ecological entity to protect should be the result, on a case-by-case basis, of the planning process involving risk assessors, risk managers, and interested parties, if appropriate. Some suggestions have been proposed [*citing to* 1997, US EPA, *Priorities for Ecological Protection; see* discussion below.]." EPA 1998 General Eco-Guidance, Part B, p.2.

Further supporting this conclusion that individual assessment is a limited exception are two other documents that are cited in the above-referenced Guidance. The EPA 1997 Superfund Eco-Guidance, at page 3-8, references *ECO Update Volume 3, Number1: Ecological Significance and Selection of Candidate Assessment Endpoints*. That *Update* explains that the risk assessment team should consider "individual, population, and community level assessment endpoints appropriate at Superfund sites." The only example, however, that it provides for an individual level assessment is "endangered or threatened species known to be present (e.g. bald eagle, spotted owl, gopher tortoise." *Id.* at 3. The Responses to Comments associated with the EPA 1998 General Eco-Guidance, Part B at page 2, contains a reference to *Priorities for Ecological Protection: An Initial List and Discussion Document for EPA*, U.S. EPA, EPA/600/S-97/002 (Jan. 1997). The "Priorities" document evaluated past EPA actions in the context of eco-risk assessment and concluded that "[e]xcept for endangered species, no case was found in which an individual nonhuman organism, or even a small number of individuals, was protected by a regulatory decision." *Id.* at 7. The document calls out endangered species specifically as a high priority for eco-risk assessment. *Id.* at 25. However, it also prioritizes a

group that it describes as "native or migratory species exposed to severe or acute threat." With respect to this category, it explains that, when an ecological receptor has been targeted for analysis and investigation, "[t]he purpose of targeting this entity is to avoid large acute incidents to fish, wildlife, or plants, such as massive fish or bird kills. *It may be focused below the population or community level. However, except in the case of endangered species . . . it does not protect single individuals but rather large numbers of individuals.*" *Id.* at 22.

Thus, in all of EPA's current guidance on eco-risk assessment, the only specific references found to risk assessment at the individual level are for species that are actually listed or are candidate threatened or endangered. As discussed above, lamprey is not listed or a candidate threatened or endangered species.

C. Requirements Under Oregon Rules

Under Oregon ecological risk assessment regulations, it is very clear that individual assessment is only required as to species that have been finally listed on the federal and Oregon threatened and endangered species list. OAR 340-122-0090(1) specifies that the DEQ Director shall choose a remedial action that meets "acceptable risk levels." OAR 340-122-0115(5) defines the "[a]cceptable risk level for individual ecological receptors" as applying only to species "listed as threatened or endangered pursuant to 16 USC 1531 et seq. or ORS 465.172 [*sic—should be ORS 496.172].*" *See* Appendix I containing excerpted portions of rules; *also available at* http://arcweb.sos.state.or.us/rules/number_index.html.

The existence of the Lamprey on the Oregon "sensitive species" list does not change this result. OAR 340-122-0115(5) does not call out any separate procedures for such species. Moreover, the "sensitive species" list itself is not mandated by Oregon statute and was instead created by ODFW "for the specific purpose of encouraging voluntary actions that will prevent further decline in species' populations and/or habitats, thus avoiding the need for [formal] listing." *See* Oregon Natural Heritage Information Center, *Rare, Threatened and Endangered Species of Oregon* at 7 (May 2004). Indeed, the list is promulgated under the authority of ORS 496.012(1), which merely directs ODFW to implement goals to maintain all species of wildlife at optimum levels. The rule implementing the list states that it is made for the sole purpose of "maintaining a watch list of species potentially eligible for listing as threatened or endangered species." OAR 635-100-040. No legal requirements are imposed on any private or governmental entity as a result of listing on the sensitive species list. Rather, "[t]he list is non-regulatory and serves as an early warning system for biologists, land managers, policy makers, and the public. It helps ensure that conservation actions are prioritized, cost-efficient, and effective." (http://www.dfw.state.or.us/wildlife/diversity/species/sensitive_species.asp.)

APPENDIX I

Oregon Regulations Related to the Department of Environmental Quality's Assessment Requirements

340-122-0040

Standards

(1) Any removal or remedial action shall address a release or threat of release of hazardous substances in a manner that assures protection of present and future public health, safety, and welfare, and the environment.

(2) In the event of a release of a hazardous substance, remedial actions shall be implemented to achieve:

(a) Acceptable risk levels defined in OAR 340-122-0115, as demonstrated by a residual risk assessment; or

(b) Numeric cleanup standards developed as part of an approved generic remedy identified or developed by the Department under OAR 340-122-0047, if applicable; or

(c) For areas where hazardous substances occur naturally, the background level of the hazardous substances, if higher than those levels specified in subsections (2)(a) through (2)(b) of this rule.

* * * * *

OAR 340-122-0115 (5):

(5) "Acceptable risk level for individual ecological receptors" applies only to species listed as threatened or endangered pursuant to 16 USC 1531 et seq. or ORS 465.172 *[sic—this appears to be a mis-reference—should be ORS 496.172]*, and means:

(a) For deterministic risk assessments, a toxicity index less than or equal to one for an individual ecological receptor at an upper-bound exposure, where the toxicity index is the sum of the toxicity quotients attributable to systemic toxicants with similar endpoints for similarly-responding species and the toxicity quotient is the ratio of the exposure point value to the ecological benchmark value; or

(b) For probabilistic risk assessments, a toxicity index less than or equal to one at the 90th percentile and less than or equal to 10 at the 95th percentile, each based on the same distribution of toxicity index numbers for an exposed individual ecological receptor; or

(c) The probability of important changes in such factors as growth, survival, fecundity, or reproduction related to the health and viability of an individual ecological receptor that are reasonably likely to occur as a consequence of exposure to hazardous substances is de minimis.

OAR 340-122-0084(3):

Baseline ecological risk assessments shall include, but are not limited to, the following information:

(a) Problem formulation to include identification of contaminants of ecological interest, potential ecological effects, ecological receptors, relevant exposure pathways, initial definition of assessment and measurement endpoints, all with respect to current and reasonably likely future land and water uses, and described in a conceptual site model;

(b) Data quality objectives for the ecological risk assessment based on the conceptual site model, with emphasis on analytical detection limits appropriate for ecological receptors;

(c) Exposure analysis to include identification and selection of potential contaminants of ecological concern, identification and selection of target ecological receptors, an exposure pathway model relating target receptors, exposure routes and measurement endpoints, and a quantitative estimate of exposure for both current and reasonably likely future land and water use scenarios;

(d) Ecological response analysis including a summary of current information regarding the toxicological effects, ecological effects, bioconcentration potential, bioaccumulation potential, biomagnification potential, and persistence of the identified contaminants of ecological concern, as well as ecological benchmark values;

(e) Risk characterization presenting the quantitative ecological risks potentially associated with the facility, identification of contaminants of ecological concern, a discussion of any available facility-specific ecological studies, an explicit discussion of risks associated with the bioconcentration potential, bioaccumulation potential, biomagnification potential, and persistence of each contaminant, and consideration of any other available, published and peer-reviewed scientific information on other sources of stress as appropriate;

(f) As appropriate, the potential for significant adverse effects on the health or viability of individual ecological receptors or local populations may be evaluated with a weight-of-evidence analysis or population viability analysis, respectively. These analyses may utilize field studies, laboratory investigations, appropriate population models, or any combination of these or other methods acceptable to the Department; and

(g) Quantitative and qualitative uncertainty analysis as appropriate for each element of the risk assessment.